

**PART 1 – GENERAL**

**1.1 A drive isolation transformer designed to withstand the harsh operating demands of harmonic producing variable speed drives (VFDs). When more than one unit is required to service multiple VFDs, upstream cancellation of 5<sup>th</sup>, 7<sup>th</sup>, 17<sup>th</sup> & 19<sup>th</sup> harmonic currents can be achieved by alternating between two model types.**

- .1 For treatment of 5<sup>th</sup>, 7<sup>th</sup>, 17<sup>th</sup> & 19<sup>th</sup> harmonics, provide the appropriate primary-secondary phase shift in order to cancel these harmonic currents with those of other loads fed from the same primary supply.
- .2 Harmonic mitigation shall be by electromagnetic means only. No capacitors or electronics shall be used.
- .3 Evidence of relevant application experience must be available upon request.

**1.2 Voltage and kVA Requirements:**

- .1 Primary Voltage: [480][600][other] Volts, 3-wire
- .2 Secondary Voltage: [480][600][other] Volts, 3-wire
- .3 kVA rating: [7.5][11][14][20][27][34][40][51][63][75][93][118][145][175][220][275][330][440][550][660][other] kVA
- .4 System Frequency: 60 [50][other] Hertz

**PART 2 - PRODUCT**

**2.1 Key Requirements:**

- .1 Positive & negative sequence impedance at 60Hz:  
2.8% to 3.5% (up to 75 kVA), 3.2% to 4.5% (93 to 330 kVA), 4.2% to 5% (440 to 660 kVA)
- .2 Primary-secondary phase-shift at 5th & 7th harmonics: [0°] [180°]

**2.2 Basic Requirements:**

- .1 Three-phase, common core construction. Convection air cooled
- .2 Copper Windings
- .3 Insulation Class: 220°C system, (transformers up to 34 kVA 200°C insulation class)
- .4 Temperature rise: 130°C [80°C][115°C][other]
- .5 Full load Efficiency at 170°C: 97% minimum
- .6 Taps: 2 x ± 2.5% (2FCAN, 2FCBN) for 40 - 660 kVA and 1 x ± 5% for up to 34 kVA
- .7 Sound level at 5 ft:  
max. 45dB up to 51 kVA, 50 dB from 63 to 145 kVA, 55 dB from 175 to 330 kVA,  
60 dB from 440 to 660 kVA
- .8 Enclosure: ventilated, sprinkler-proof NEMA-1 [totally enclosed][other].
- .9 Finish: Grey [other]
- .10 Anti-vibration pads shall be used between the core and the enclosure
- .11 UL listed and CSA approved
- .12 Built to NEMA ST-20 and in accordance with all applicable UL, CSA and ANSI/IEEE standards
- .13 Warranty: 10 year pro-rated, with standard limited liability clauses

**2.3 Options:**

- .1 Electrostatic shielding: [single: 60dB attenuation] [dual: 120dB attenuation]
- .2 Over-Temperature switch wired to internal terminal strip. Temperatures specified for use with class 220°C insulation systems. Standard configuration is N.C. opening on high temperature. Optional configuration is N.O. closing on high temperature. Installation options: [one switch: 170°C or 200°C on center coil][two switches: 170°C and 200°C on center coil][six switches: one 170°C and one 200°C on each of the 3 coils]

**2.4 Acceptable Product and Manufacturer:**

Drive Tamer™ transformer, by: MIRUS International Inc.

**PART 3 - EXECUTION**

**3.1 Installation**

- .1 The harmonic mitigation equipment shall be handled, stored and installed in accordance with the manufacturer's recommended installation practices as found in the installation, operation, and maintenance manual. Installation shall comply with all applicable codes.

**3.2 Acceptance**

- .1 Harmonic compliance shall be verified with onsite field measurements of both the voltage and current harmonic distortion at the input terminals of the harmonic mitigating equipment with and without the equipment operating. A recording type Fluke 41 or equivalent harmonics analyzer displaying individual and total harmonic currents and voltages must be utilized.